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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,049	12/30/2003	David B. Olson	58907US002	6791
32692 7590 01/03/2008 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			EXAMINER BERNSHTEYN, MICHAEL	
			ART UNIT	PAPER NUMBER
			1796	
			NOTIFICATION DATE	DELIVERY MODE
			01/03/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

10/748,049

Applicant(s)

OLSON ET AL.

Examiner

Michael M. Bernshteyn

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-13,19 and 23-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-13,19 and 23-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This Office Action follows a response filed on September 27, 2007. No claims have been amended or cancelled; claim 25-37 have been added.
2. In view of the amendment(s) and remarks the rejection of claims 1 and 19 under 35 U.S.C. 112, 1<sup>st</sup> paragraph has been withdrawn.
3. Claims 1-7, 9-13, 19 and 23-37 are active.

#### ***Claim Rejections - 35 USC § 102***

4. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.

#### ***Claim Rejections - 35 USC § 103***

5. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.
6. Claims 1-7, 9-13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson et al. (U.S. Patent 6,261,700) in view of Williams et al. (U.S. Patent 5,626,800) and further in view of Martens (U. S. Patent 4,576,850), for the rationale recited in paragraph 8 of Office Action dated on January 19, 2007.
7. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson et al. (U.S. Patent 6,261,700) in view of Williams et al. (U.S. Patent 5,626,800) and Martens (U. S. Patent 4,576,850), for the rationale recited in paragraph 8 of Office Action dated on June 28, 2007.

8. Claims 25-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson et al. (U.S. Patent 6,261,700) in view of Williams et al. (U.S. Patent 5,626,800) and further in view of Martens (U. S. Patent 4,576,850).

Olson discloses coatings, composite structures containing coatings, and compositions for preparing and methods of preparing coatings and composite structures, wherein the compositions comprise inorganic oxide particles and polymerizable brominated compounds, and coatings comprise inorganic oxide particles and a brominated polymer (abstract).

With regard to the limitations of instant claims 25 and 37, Olson discloses the compositions, which contain ingredients including inorganic oxide particles and a curable binder precursor, wherein the binder precursor includes a polymerizable brominated compound. Particularly preferred polymerizable brominated compounds comprise polymerizable aromatic, brominated (meth)acrylate compounds having an aromatic portion, a brominated portion (which may or may not be the aromatic portion), and a (meth)acrylate moiety (col. 4, lines 53-63).

Olson discloses that the most preferable first monomer comprising a major portion of 2-propeonic acid, (1-methylethylidene)bis[(2,6-dibromo-4,1- phenylene)oxy(2-hydroxy-3,1-propanediyl)] ester as the reaction product of tetrabromobisphenol A diglycidyl ether and (meth) acrylic acid which is known under the trade designation 'RDX-51027' and used in the table 1, examples 1 and 3 (col. 26, lines 18-55). This component is readable as component a) in the instant claim 25. Other examples of polymerizable brominated compounds that can be useful in the binder precursor include

but are not limited to tribromophenyl (meth)acrylate, pentabromophenyl (meth)acrylate, tribromophenylethyl (meth)acrylate, bromomethyl styrene, and brominated bisphenol A (meth)acrylate compounds (col. 8, lines 28-33). Tribromophenyl (meth)acrylate is readable as component b) in the instant claim 25.

A multifunctional non-brominated compound can be any multifunctional non-brominated compound that can react with the other components of the binder precursor to produce a polymer. Preferred multifunctional non-brominated compounds comprise ester (meth)acrylate compounds such as difunctional (meth)acrylate esters of a polyhydric alcohol, and combinations thereof. Of these, trifunctional and tetrafunctional esters of (meth)acrylate esters of polyhydric alcohol can be especially preferred. Examples of suitable multifunctional ester (meth)acrylates include poly(meth)acrylic acid esters of polyhydric alcohols including, for example, tri(meth)acrylic acid esters of pentaerythritol, etc. Particularly preferred multifunctional ester (meth)acrylic acids can comprise a mixture of di-, tri-, and tetra(meth)acrylate esters of pentaerythritol (col. 12, line 39 through col. 13; line 13). Pentaerythritol tri(meth)acrylate is readable as component c) in the instant claim 25.

Olson discloses that the binder precursor can optionally include one or more polymerizable non-brominated compound (e.g., a monomer, dimer, oligomer, pre-polymer, or polymer), which can react with other components of the binder precursor to provide a brominated polymeric matrix. Such non-brominated compounds can include low molecular weight reactive diluents which can modify flow properties of the composition, and multi-functional crosslinking agents to crosslink polymers upon

reaction and provide a highly crosslinked matrix (col. 10, line 67 through col. 11, line 13). Examples of suitable monofunctional non- brominated polymerizable compounds include 2-hydroxyethyl (meth)acrylate, 2- methylbutyl (meth)acrylate, (meth)acrylic acid, itaconic acid, 2-phenoxyethyl (meth)acrylate, etc. (col. 11, lines 35-45), thus naming the species of the instant claims, including those elected by Applicant. 2-phenoxyethyl (meth)acrylate is readable as component d) in the instant claim 25.

Olson discloses examples of photoinitiators that generate a free radical source when exposed to ultraviolet light include, but are not limited to, organic peroxides, azo compounds, quinones, etc. (col. 17, lines 23-30). A photoinitiator is readable as component e) in the instant claim 25.

Olson does not disclose that a brightness enhancing film comprising an optical layer having a linear array of regular right prisms and that the polymerizable composition is solvent-free.

Williams discloses a method of producing a microstructure bearing article that includes the steps of molding the microstructure on the base, curing the resin that forms the microstructure, and heat treating the microstructure (abstract).

With regard to the limitations of instant claim 25, Williams discloses that the brightness enhancement film 11 includes an array of prisms typified by prisms 22, 24, 26, and 28, as illustrated in FIG. 2. Each prism, for example, such as prism 22, has a first facet 30 and a second facet 32. The prisms 22, 24, 26, and 28 are formed on a body portion 34 that has a first surface 36 on which the prisms are formed and a second surface 38 that is substantially flat or planar and opposite the first surface. A linear array

of regular right prisms is preferred for both optical performance and ease of manufacture (col. 2, lines 43-52).

Martens discloses an article comprising a shaped, plastic layer or body comprising crosslinked polymer with hard and soft segments or moieties and having a microstructure-bearing surface is prepared by a process comprising filling a mold master, bearing or encoded with the microstructure to be replicated, with a fluid, castable, one-part, preferably solvent-free, radiation addition- polymerizable, crosslinkable, synthetic, organic oligomeric composition (abstract).

All three references are analogous art because they are from the same field of endeavor concerning new polymerizable compositions for optical articles.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate optical layer having a linear array of regular right prisms as taught by Williams in Olson's polymerizable composition for optical articles and to obtain the polymerizable composition as solvent-free as taught by Martens because of the following: 1) a linear array of regular right prisms is preferred for both optical performance and ease of manufacture (US'800, col. 2, lines 50-52), 2) use of solvents require a long time to evaporate, long cure cycles, curable materials which have a limited "pot" life, or result in replicated articles having limited toughness and dimensional stability and with severe shrinkage (US'850, col. 2, lines 4-8), and thus to arrive at the subject matter of instant claims 25 and dependent claim 37.

With regard to the limitations of instant claims 26-28, Olson discloses that while amounts outside of the following ranges may be useful, preferred binder precursors can

include from about 20 to about 80 parts by weight (pbw) polymerizable brominated compound, e.g., aromatic, brominated (meth)acrylate compound, which is within the claimed range (col. 13, lines 19-22).

With regard to the limitations of instant claims 29-30, Olson discloses that the binder precursor can also contain polymerizable non-brominated compound in useful amounts, e.g., from about 20 to 80 pbw, preferably about 50 to 70 pbw, based on 100 pbw binder precursor, which is within the claimed range (col. 13, lines 31-33).

Furthermore, it is noted that the amount of the weight ratio of the components A and B is a result effective variable, and therefore, it is within the skill of those skilled in the art to find the optimum value of a result effective variable, as per In re Boesch and Slaney 205 USPQ 215 (CCPA 1980). See also *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382: "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."

With regard to the limitations of instant claims 31 and 33-36, Olson discloses that 2-(phenoxy)ethyl (meth)acrylate as monofunctional (meth) acrylate diluent is a liquid at ambient (room) temperature with low volatility and  $T_g = 5400$  (col. 11, line 42).

With regard to the limitations of instant claim 19, Olson discloses that while amounts outside of the following ranges may be useful, preferred binder precursors can include from about 20 to about 80 parts by weight (pbw) polymerizable brominated compound, e.g., aromatic, brominated (meth)acrylate compound, which is within the claimed range (col. 13, lines 19-22).



With regard to the limitations of instant claim 32, Olson discloses that particularly preferred multifunctional ester (meth)acrylic acids can comprise a mixture of di-, tri-, and tetra(meth)acrylate esters of pentaerythritol (col. 12, line 39 through col. 13, line 13). The amount of **pentaerythritol triacrylate** is within the claimed range (see Component A (col. 24, lines 65-67), Component B (col. 25, lines 18-20) and Component C (col. 25, lines 48-50)). Pentaerythritol triacrylate is a liquid at ambient (room) temperature with low volatility, fast curing monomer for use in free radical polymerization (see [www.sartomereurope.com](http://www.sartomereurope.com)).

#### ***Response to Amendment***

9. The Declaration under 37 CFR 1.132 filed on September 27, 2007 is insufficient to overcome the rejection of claims 1-7, 9-13, 23 and 24 based upon 35 U.S.C. 103(a) as set forth in the last Office action because: the declaration fails to set forth the evidence of unexpected results. It is worth to mention, "Although an affidavit or declaration which states only conclusions may have some probative value, such an affidavit or declaration may have little weight when considered in light of all the evidence of record in the application." ***In re Brandstadter***, 484 F.2d 1395, 179 USPQ 286 (CCPA 1973).

In response to the Applicants argument that based on refractive index testing conducted at 3M Company, the refractive index of pentaerythritol tetra(meth)acrylate is 1.48, while the refractive index of EB-9220 is 1.51, and therefore pentaerythritol tetra(meth)acrylate can be substituted for pentaerythritol triacrylate (pages 1-2,

paragraphs 2-4), it is noted that in the absence of showing the critically, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the compound having the adjusted value of the refractive index in order to obtain the desirable level of optical properties for the brightness enhancing film.

### ***Response to Arguments***

10. Applicant's arguments filed on September 27, 2007 have been fully considered but they are not persuasive.

11. It appears that the focal Applicants argument resides in the contention that the achievement of comparable gain using lower refractive index components is an unexpected result of the claimed polymerizable resin compositions (page 14).

12. It is well settled that the Applicants have to use the closest prior art to run a consecutive "back-to-back" test to show unexpected results, if any. "Showing unexpected results over one of two equally close prior art references will not rebut prima facie obviousness unless the teachings of the prior art references are sufficiently similar to each other that the testing of one showing unexpected results would provide the same information as to the other". In re Johnson, 747 F.2d 1456, 1461, 223 USPQ 1260, 1264 (Fed. Cir. 1984).

Objective evidence which must be factually supported by an appropriate affidavit or declaration to be of probative value includes evidence of unexpected results, commercial success, solution of a long-felt need, inoperability of the prior art, invention before the date of the reference, and allegations that the author(s) of the prior art

derived the disclosed subject matter from the applicant. See, for example, *In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984) ("It is well settled that unexpected results must be established by factual evidence." "[A]ppellants have not presented any experimental data showing that prior heat-shrinkable articles split. Due to the absence of tests comparing appellant's heat shrinkable articles with those of the closest prior art, we conclude that appellant's assertions of unexpected results constitute mere argument."). See also *In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972); *Ex parte George*, 21 USPQ2d 1058 (Bd. Pat. App. & Inter. 1991). See MPEP 716.01(c).

13. The examiner again should repeat that in the absence of showing criticality in the instant specification and declaration of achieving the specific level of the value of the refractive index, it is the examiner position to believe that Olson's brominated polymer composition with the combined Martens would be substantially identical to the claimed composition for brightness enhancing film. Furthermore it is worth to mention that the difference between the refractive indexes of EB-9220 and PETA is less than 3% which is within usual variation for testing results.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael M. Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-Th 8-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Michael Bernshteyn  
Patent Examiner  
Art Unit 1796

MB  
12/20/2007

  
LING-SUI CHOI  
PRIMARY EXAMINER